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ABSTRACT

This study evaluated turnover of special education teachers by providing national estimates of the numbers of special education teachers who (1) were retained by their school, (2) were reassigned to a different school within the district, (3) migrated to another district, or (4) left public school teaching. Numbers were drawn from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey of the National Center for Education Statistics. Parallel analyses were made for turnover of teachers in general education. In general the results indicated that teacher turnover at the school level was significantly higher for special education than for general education teachers (20 percent versus 13 percent), and that teachers in special education were significantly more likely to leave public school teaching than their general education counterparts (7.9 percent versus 5.8 percent). With respect to turnover, teachers of students with learning disabilities were less likely than other special education teachers to leave their schools, but more likely to do so than general education teachers. The advantages of quantifying each component of teacher turnover were discussed, as well as the implications of these and other findings for public policy related to teacher retention and supply in special education. (Author/DB)

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WHITHER DIDST THOU GO? RETENTION, REASSIGNMENT, MIGRATION, AND ATTRITION OF SPECIAL AND GENERAL EDUCATION TEACHERS IN NATIONAL PERSPECTIVE[1]

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Abstract

In view of the paucity of national data on teacher retention, transfer, and attrition in special education, and the importance of these phenomena to teacher demand and shortage, this research provides such data from a national probability sample of 4,798 public-school teachers from the 1989 Teacher Followup Survey. The analysis focused on two main teaching fields (special and general education) and various aspects of teacher turnover. Results showed significantly higher annual turnover for special education teachers (SETs) than for general education teachers (GETs), both in terms of attrition (SETs = 8%; GETs = 6%) and of school transfer (SETs = 12%; GETs = 7%). However, SETs and GETs who left teaching did not differ significantly in post-teaching activities and plans to return to teaching. With respect to turnover, teachers of learning disabled students were more similar to GETs than were other SETs. Implications of teacher turnover for teacher demand, shortage, recruitment, retention, and education are discussed.

Introduction

Teacher turnover in public schools is a significant factor undermining program stability and quality. Unfortunately, there is a reasonably high annual turnover of the teaching staff of public schools with some teachers being reassigned to another school within the district, some migrating to teaching positions in other districts, and others leaving public school teaching for other pursuits (i.e., attrition). However, the degree to which such year-to-year change occurs, the status of teachers in the year after leaving a school, and related differences between special and general education teachers are virtually unknown from a national perspective. There is considerable evidence that turnover in special education is greater than in general education (e.g., Bobbitt, Faupel, & Burns, 1991; Billingsley, 1993; Boe, Cook, Kaufman, & Danielson, 1993), a phenomenon magnified by the additional loss of special education teachers (SETs)[1] through transfer to general education (Billingsley & Cross, 1991; Schrag & Theobald, 1989). Consequently, a better understanding of the dynamics of year-to-year changes in the national teaching force in special education would be of considerable benefit to education policy makers, administrators, and others who are concerned with problems posed by teacher turnover.

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[1]In addition to SETs, two other categories of teachers are abbreviated for simplicity. One is for general education teachers (GETs), and the other for teachers of students with learning disabilities (LDTs).

With respect to the reassignment and migration components of teacher turnover, Choy, Medrich, Henke, and Bobbitt (1992) reported, based on the 1989 Teacher Followup Survey (TFS) of the National Center for Education Statistics (NCES), the U.S. Department of Education (USDE), that approximately 14% of SETs transferred to a different public school following the 1987-88 school year. Though this number combines teachers who were reassigned to a school in the same district and those who migrated to a different district, the 14% figure is about twice the percentage of SETs who leave teaching entirely as reported by Bobbitt et al. (1991) using the same national data base. Thus in total, a remarkably high 21% of SETs in one year left the school (i.e, turned over) in which they had been teaching.

The only state data reported on school transfer of teachers pertains to migration to a different district within Wisconsin (Lauritzen & Friedman, 1992). The Wisconsin data showed migration of only 1.1% for general education teachers (GETs) and a slightly higher 1.7% for SETs. Though these percentages are low compared to the 14% for special education reported by Choy et al. (1992) for the nation as a whole, the figures are not directly comparable because the latter percentage includes within-district reassignment as well as migration.

With respect to the attrition component of teacher turnover, comprehensive reviews of the literature in special education have appeared elsewhere (Billingsley, 1993; Brownell & Smith, 1992). The most recent national estimate indicated that 7.3% (or about 17,500) SETs leave the profession annually (Bobbitt et al., 1991, reporting data for the 1987-88 school year based on the 1989 TFS). In contrast, the attrition percentage for all teachers combined was 5.6%. Since total teachers include SETs, the attrition percentage for general education teachers (GETs) would therefore be somewhat less than 5.6%. Since these are the only reliable national attrition estimates during the past two decades, no national trend in attrition percentages is known.

Relatively recent data about attrition of SETs are available from Wisconsin, Kansas, and Michigan. For Wisconsin, Lauritzen and Friedman (1992) reported a steady decline in attrition percentages of SETs from 10.8% for the 1984-85 public school teaching force to 6.8% for the 1990-91 teaching force. Although attrition percentages for GETs also generally declined during these years, the SET attrition percentages were about 50% higher than for GETs. These attrition percentages include the transfer of SETs to general education and migration to out-of-state public schools, facts which increase the attrition percentages reported in comparison with percentages limited to exit attrition (i.e., leaving the teaching profession). However, the attrition percentages

from Lauritzen and Friedman are based only on SETs with regular licenses (attrition of SETs with emergency licenses were excluded for this purpose), a fact which almost certainly resulted in a lower attrition percentage than would have been found if teachers practicing with emergency licenses were included. These subtleties illustrate the complexity of attrition data, which creates difficulty in comparing the findings of various studies of attrition. Limitations of data bases and the absence of a standardized conceptual framework make cross-study differences inevitable.

A similar trend in attrition percentages for public school SETs in Kansas has been reported by McKnab (1993). Attrition percentages based on all SETs (regular and emergency certified) in Kansas gradually declined from 15.4%[2] for 1984-85 to 8.6% for 1992-93. These attrition percentages also include transfer of SETs to general education and out-of-state migration. Attrition data for GETs were not reported.

Even though Parshall (1990) reported much lower attrition percentages for both SETs and GETs in Michigan, nonetheless the attrition percentages for all public school SETs declined from 1986-87 (4.2%) to 1988-89 (3.6%). As in Wisconsin, GET attrition percentages also declined during this period, but SET attrition was about 50% higher than for GETs. The Michigan attrition percentages likewise include transfer of SETs to general education and out-of-state migration.

Finally, little is known about the magnitude of the loss of teachers from special education to general education (i.e., cross-field attrition). According to Schrag and Theobald (1989) who studied this phenomenon in the State of Washington, over 5% of SETs transferred to general education following the 1986-87 school year. Reasons for special to general education teacher transfers were studied in 286 SETs by Billingsley and Cross (1991) in Virginia. In general, these teachers left special education for general education teaching ". . . because of administrative factors and the stress involved in working with special education students" (p. 507).

The review of available attrition data presented above is consistent in showing that the attrition percentages, which unfortunately combined several major components of teacher turnover, have declined considerably for both SETs and GETs from the mid-1980s to the early 1990s. Yet attrition of SETs is consistently higher than that of GETs. Unfortunately, the state data reported on special education attrition incorporates four major components of attrition into one figure; namely, leaving the profession, migrating to out-of-state schools, transferring to

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[2]P. McKnab, personal communication, October 25, 1993.

private school teaching, and transferring to a teaching specialization in general education. Consequently, these data do not provide a clear picture of the status of teachers in the profession during the time periods under study. The only way to obtain precise information about the components of teacher retention, transfer, and attrition is to use a data base that permits tracking of teacher transfers across schools, districts, and state boundaries, across the public and private sectors, across teaching specializations, and out of the teaching profession.

The objectives of this research were to provide, for the first time, (a) nationally estimated numbers of teachers for each component of retention and turnover of SETs in the public sector, and to identify how special and general education teachers are similar or different in these respects, (b) information about plans of SET and GET leavers to return to teaching, and (c) parallel information for teachers of students with learning disabilities (LDTs) and all other SETs.

It should be noted that turnover and attrition are not synonymous in themselves with teacher shortages, though exit attrition and transfer attrition to general education could result in shortages of SETs. An analysis of sources of supply and shortages of SETs is presented by Boe, Cook, Kaufman, and Danielson (1993).

Method

The research reported here is based on the Public School Teachers Questionnaire of the 1987-88 Schools and Staffing Survey, and the subsequent Questionnaires for Current Teachers and for Former Teachers of the 1989 Teacher Followup Survey, all conducted by NCES. The design of these surveys provides for representative estimates of the numbers and attributes of teachers in the U.S. in both public and private sector schools.

The Schools and Staffing Survey (SASS)[3]

SASS was first administered to national probability samples of teachers, principals, schools, and public sector school districts during the period January through May of 1988. A stratified systematic probability proportionate-to-size selection procedure was used to draw the SASS sample. The size of the teacher sample in public schools was 56,242. The sample design

[3]A complete technical description of this survey is provided by Kaufman (1991), much of which is presented here in condensed form in Appendix A. A briefer, less-technical description is found in Boe and Gilford (1992, Appendix B). Copies of survey questionnaires are available from NCES.

permits national estimates for both special and general education teachers at the elementary and secondary levels in the public sector, as well as for many other variables.

SASS was composed of four basic questionnaires, with minor variations for units in the public and private sectors. The sample sizes for the four questionnaires used in the public sector, along with specification of the units sampled, are shown in Table 1. SASS questionnaires were administered by mail, with extensive telephone followup. Consequently, questionnaire response rates were quite high--a weighted response rate of 86.4% for the Public School Teachers Questionnaire (Kaufman, 1991, p. 2).

SASS was designed so that schools were the primary sampling unit. Once a school was selected for the sample, the principal of that school was selected for the Administrator Questionnaire and a sample of four to eight teachers from that school was selected for the Teacher Questionnaire. In the public sector, the district in which the school was located was selected for the Teacher Demand and Shortage Questionnaire. This design, therefore, permits the linking of data from one questionnaire to another. For example, teachers' perceptions of school climate can be compared with similar perceptions of the principals of their schools.

The public school teachers questionnaire was the only component of SASS used in this research. It concentrated on their current teaching status, teaching experience, training and other qualifications, current teaching load, perceptions and attitudes toward teaching, compensation and incentives, and demographic and socioeconomic characteristics.

Teacher Followup Survey (TFS)[4]

TFS was administered during the period of March through July of 1989 (one year after SASS) to samples of teachers that had been included in the SASS sample of teachers during the prior year. It was composed of two questionnaires, a Questionnaire for Current Teachers who continued in the teaching profession from 1987-88 to 1988-89, and a Questionnaire for Former Teachers who had left the teaching profession at the end of the 1987-88 school year. The Questionnaire for Current Teachers was administered to a national sample of teachers drawn from the SASS sample of teachers. One stratum of this sample included teachers who had continued teaching in the same school (stayers), while another stratum included teachers who

[4]A complete technical description of this survey is provided by Faupel, Bobbitt, and Friedrichs (1992), while a briefer, less-technical description is found in Boe and Gilford (1992, Appendix B). Copies of survey questionnaires are available from NCES.

Table 1

Description of the 1987-88 Schools and Staffing Survey (SASS) and the 1989 Teacher Followup Survey (TFS): Public Sector

Public Sector Questionnaire	Units Sampled	Sample Size
Schools and Staffing Survey (1987-88)		
1. Teacher Demand and Shortage	School Districts	5,592
2. School Administrator	School Principals	9,317
3. Public School	Public Schools	9,317
4. Public School Teacher	Public Teachers	56,242
Teacher Followup Survey (1989)		
1. Current Teachers (Continuing)	Public Teachers	
a. Same School (Stayers)	Public Teachers	2,118
b. Different School (Movers)	Public Teachers	1,150
2. Former Teachers (Leavers)	Public Teachers	2,307

Note. Data from the National Center for Education Statistics, USDE (Kaufman, 1991). Copies of the SASS and TFS questionnaires are available from NCES.

had moved to a different school (movers). The teacher sample was drawn within each stratum by using a probability proportionate-to-size selection procedure. In contrast, the Questionnaire for Former Teachers was administered to all teachers from SASS who had left the teaching profession at the end of the 1987-88 school year (leavers). The sample sizes for the followup questionnaires are also shown in Table 1.

TFS questionnaires were administered by mail, with extensive telephone followup. Consequently, questionnaire response rates were high--a weighted response rate of 97.5% for the Questionnaire for Current Teachers and 93.6% for the Questionnaire for Former Teachers (Faupel, et al., 1992, p. 4).

The followup questionnaires of public school teachers concentrated on their current employment and teaching status, educational activities and future plans, a wide variety of opinions about teaching, and demographic and socioeconomic characteristics. Since the TFS sample of teachers was drawn from the SASS sample, it is possible to link responses to SASS and TFS questionnaires, thereby permitting analysis of similarities and differences from one year to the next in many variables of interest, such as factors related to teachers transferring among schools and teachers leaving the profession.

Teacher Sample

In keeping with the SASS definition of a teacher and for the purposes of this research, a teacher was defined as:

> . . . any full-time or part-time teacher whose primary (i.e., main) assignment was teaching in any of grades K-12. Itinerant teachers were included, as well as long-term substitutes who were filling the role of a regular teacher on an indefinite basis. An itinerant teacher is defined as a teacher who teaches at more than one school (Kaufman, 1991, p. 5).

Thus, excluded from the definition of a teacher were individuals who identified their main assignment as a pre-kindergarten teacher, short-term substitute, student teacher, non-teaching specialist (e.g., counselor, librarian, school social worker, occupational therapist, and the like), administrator, teacher aide, and other professional or support staff. The application of this definition of a teacher was accomplished by a two-stage process. First, schools selected for the SASS sample were asked to provide teacher lists for their schools from which the teacher sample for the school was selected. The individuals thus selected were sent the teacher questionnaire,

the first item of which asked them to identify their main assignment at that school. Those that indicated their main assignment was other than a regular, itinerant, or long-term substitute teacher (either full-time or part-time) were not included in the teacher sample. Thus, at the second stage, teachers self-defined their main assignment and, therefore, their status as a teacher.

SETs were defined operationally as those public school teachers in 1987-88 who selected any one of five special education specializations in response to item 16a of the SASS teacher questionnaire which read as follows: "What is your current primary teaching assignment field at THIS SCHOOL, that is, the field in which you teach the most classes?" The five special education specializations from which the teachers selected were: learning disabled, mentally retarded, emotionally disturbed, speech and hearing impaired, and other special education. In view of the category "other special education," all elementary and secondary teachers with a main assignment in the broad field of special education should have been able to identify themselves as such, regardless of the particular certification categories or terminology used in their home state. For the analyses based on the two subcategories of SETs, the first was composed of teachers that identified their main teaching assignment as learning disabled, while the other was composed of all teachers that identified their main teaching assignment as any one of the other four specializations listed above. Small sample sizes did not permit further subdivision of this second subgroup of SETs into other specializations.

GETs were defined operationally as public school teachers in 1987-88 who selected any one of 26 other teaching specializations in elementary and secondary education in response to item 16a of the SASS teacher questionnaire. Vocational education was included in these 26 specializations, while the pre-kindergarten specialization was excluded.

The sizes of the samples of teachers on which the analyses of this report were based are presented Tables 2 through 11. The total sample size of 4,798 teachers reported in Table 2 is the net teacher followup sample after modest questionnaire nonresponse.

Design

The research was designed to analyze, from a national perspective, four components of the public education teacher force; namely, school retention, reassignment, migration, and attrition of special education and general education teachers from school year 1987-88 to 1988-89, as described below.

School Retention. Public school teachers in 1987-88 who continued as public school teachers in the same school in 1987-88 constituted the school retention component. Such teachers (called stayers) were defined operationally as public school teachers in 1987-88 who selected response alternative 1 to item 9 of the TFS Questionnaire for Current teachers.

Reassignment. Public school teachers in 1987-88 who were reassigned, either voluntarily or involuntarily, to a different school in the same district in 1988-89 constituted the reassignment component. Such teachers (called reassignees) were defined operationally as public school teachers in 1987-88 who selected response alternative 1 to item 11 of the TFS Questionnaire for Current teachers.

Migration. Public school teachers in 1987-88 who migrated to a different public school district in 1988-89 constituted the migration component. Such teachers (called migrants) were defined operationally as public school teachers in 1987-88 who selected response alternative 2 to item 11 of the TFS Questionnaire for Current teachers. Migration was subdivided into teachers who migrated to a different school district within the same state and those who migrated to a school district in a different state. This discrimination was based on responses to two items: alternative (2) to item 11 and then item 10 of the Questionnaire for Current Teachers.

Attrition. Public school teachers in 1987-88 who left public school teaching in 1988-89 (called leavers) constituted the attrition component. This included public school teachers (K through 12) in 1987-88 who left to teach pre-kindergarten and to teach in a private school in 1988-89. Such teachers (called leavers) were defined operationally as all public school teachers in 1987-88 who either (a) completed the TFS Questionnaire for Former Teachers, (b) selected alternative 5 to item 11 of the TFS Questionnaire for Current Teachers (i.e., moved from a public to a private school), or (c) classified their main teaching assignment as pre-kindergarten teaching in response to item 5a of the TFS Questionnaire for Current Teachers.

Attrition was investigated in terms of (a) reasons given by leavers for exiting the teaching profession, (b) occupational status of leavers in the year after leaving public school teaching, and (c) plans of leavers to return to teaching--all based on the Questionnaire for Former Teachers. The first analysis was based on responses to item 23a. which read: "What was your main reason for leaving the teaching profession?". The five main reasons analyzed were (a) to pursue another career, (b) for pregnancy and/or child rearing, (c) for family considerations or personal move, (d) to retire, and (e) other, which included health reasons, for better salary or benefits,

to take course to improve career opportunities (either in or out of education), school staffing action (lay-offs, school closing, etc.), to take a sabbatical, dissatisfied with teaching as a career, and other family or personal reason.

The second analysis was based on responses to item 1 which read: "What is your primary occupational status?" The five occupational status categories analyzed were (a) employment in an elementary or secondary school other than teaching, (b) employment in an occupation outside of elementary or secondary education, (c) homemaking and/or child rearing, (d) retired, and (e) attending a college or university, disabled, and other.

The third analysis was based on responses to items 18 ("Do you plan to return to teaching?") and 19 ("How soon might you return to teaching?"). The four categories of plans analyzed were (a) by next year, which included response alternatives 1 (later this school year) and 2 (next year) to item 19, (b) eventually, which included response alternatives 3 (within five years) and 5 (more than five years from now) to item 19, (c) undecided, based on response alternative 5 to item 19, and (d) never, based on response alternative 2 to item 18.

A subsidiary analysis was made of former public school teachers (i.e., leavers) who became employed in other education positions. They were analyzed in terms of their responses to item 2 which read: "What is your main school assignment?" The four categories of other education positions included (a) school administrator, (b) nonteaching specialist (counselor, librarian, etc.) and resource person for teachers (department head, curriculum coordinator, etc.), (c) other, which included support staff, coach, and other, and (d) private school teaching in 1988-89 (defined by response alternative 5 to item 11 of the Questionnaire for Current Teachers).

Another subsidiary analysis was made of former public school teachers (i.e., leavers) who became employed in an occupation outside of elementary or secondary education. They were analyzed in terms of their responses to item 3a. which read: "What kind of business or industry is this?" Responses to this item were first coded in accordance with the Industry and Occupation Codes of the U.S. Bureau of Census, and then classified by the authors into (a) educationally-relevant positions, such as speech and hearing specialist, and (b) not educationally-relevant position (i.e., all positions not included in educationally-relevant).

To recapitulate, the principal part of the research design was a 2 x 4 design based on two main teaching fields (special and general education) and four categories of teachers in 1988-89

(retention, reassignment, migration, and attrition), along with various subdivisions of migrant and leaving teachers.

The research also analyzed turnover of two subcategories of SETs included in the principal part of the design. These two subcategories were (a) teachers specializing in teaching students with learning disabilities (LDTs) and (b) all other SETs. This phase also investigated the four basic categories of teacher status in 1988-89 (i.e., retention, reassignment, migration, and attrition). In addition, the subcategory of SETs migrating to different districts was investigated further in terms of in-state and out-of-state migration. Finally, those who had left the profession in 1988-89 were further subdivided by four levels of plans to return to teaching.

Analysis Procedures

Based on the teacher followup sample sizes reported in Tables 2 through 11, weighted estimates of the numbers of teachers nationally were computed by procedures used by NCES for complex sample survey data (Faupel, et al., 1992). These national estimates are presented in this paper and were used for statistical analyses. Because SASS and TFS data are subject to design effects due to stratification and clustering of the sample, standard errors were computed using the method of balanced repeated replications. Finally, chi-square tests of the statistical significance of differences between SETs and GETs were performed on the nationally estimated numbers of teachers, and were adjusted appropriately for average weights and for average design effects due to the structure of the sampling procedure. Also computed were t-tests of the significance of differences between SET and GET percentages.

Results

Comparisons of Special and General Education Teachers

National estimates of the total numbers of SETs (245,292) and GETs (2,135,731) in the public school teaching force in 1987-88, as well as the status of these teachers in 1988-89, are presented in Table 2.[5] As seen, school retention from 1987-88 formed the predominant component of the teaching force in 1988-89, though considerably less so for special education (79.9%) than for general education (87.1%) teachers. Therefore, more SETs (20.1%) than

[5]All tables of results (tables numbered 2 through 11) are presented at the end of this report following the list of references.

GETs (12.9%) necessarily left their public school assignment in 1987-88. Special and general education differed significantly in the percentages of teachers in the various turnover categories, $^2(3, N = 4,798) = 21.42, p < .01$. The SET/GET differences are considerable, and indicate that SETs are more mobile within public education and leave teaching at a higher rate than GETs.

A central issue for this research was the comparison of attrition of SETs and GETs, as shown in Table 2. On the basis of limited, but rather consistent past research, it was hypothesized that SETs leave teaching at a higher rate than GETs. As expected, the SET attrition percentage (7.9%) was significantly higher than for GETs (5.7%), $t(1,610) = 1.68$, $p < .05$ one-sided.

More detailed data on the mobility of GETs and SETs within public education is presented in Table 3 with respect to migration in-state and out-of-state. Special and general education differed significantly in the percentages of teachers in the various school transfer categories, $^2(3, N = 3,164) = 26.83, p < .01$. Of the teaching force continuing from 1987-88 to 1988-89, the data show that teachers transferring to out-of-state public schools are a very small proportion of the entire teaching force (1.3%). Once again the significantly greater mobility of SETs than GETs within public education is seen, both within [$t(416) = 3.27, p < .01$ two-sided] and across [$t(162) = 2.22, p < .05$ two-sided] state boundaries.

Table 3 also shows that the estimated total number of teachers transferring to a public school in a different state was 20,329. To analyze further the mobility of these teachers, they were subdivided into those who transferred to an adjacent state (i.e., one with a common border with the home state) and those who transferred to a nonadjacent state (i.e., one not having a common border with the home state). This subanalysis showed that significantly more teachers transferred to a nonadjacent state (63.8%) than to an adjacent state (36.2%), $t(162) = 1.98$, $p < .05$ two-sided.

The main reasons given for leaving teaching are reported in Table 4. Special and general education differed significantly in the percentages of exiting teachers reporting various reasons for leaving, $^2(3, N = 1,543) = 15.90, p < .01$. The striking differences between SETs and GETs are that a the higher percentage of SETs leave to pursue another career (30.4% versus 10.8%), while a much higher percentage of GETs leave to retire (24.9% versus 6.1%).

The main reasons given for leaving teaching in 1987-88, as reported in Table 4, do not correspond exactly to the primary activity actually assumed in the following year (see Table 5). Whereas 30.4% of SETs and 10.8% of GETs reported leaving teaching mainly to pursue another career, the percentage of leavers actually employed in 1988-89 was much higher (47.4% for SETs and 38.1% for GETs for employment in and out of education combined). The data in Table 5 suggest that SETs are more likely than GETs to be employed in non-teaching positions in education (32.1% versus 21.2%), while GETs are more likely than SETs to be retired (24.1%% versus 17.2%). However, special and general education did not differ significantly in the percentages of the post-teaching activity reported by teachers who left, $^2(4, N = 1,612) = 3.47, p > .10$.

Comparing Tables 4 and 5, we note that while 19% of all teachers reported pregnancy and child rearing as the main reason for leaving, in the year after leaving fully 25% were principally engaged in homemaking and child care. SETs were three times more likely than GETs to report pursuit of another career as the main reason for leaving, while GETs were four times more likely than SETs to report that retirement was the main reason (see Table 4). While these differences between SETs and GETs in reasons for leaving were statistically significant, SETs and GETs did not differ significantly in their actual activities during the year following leaving (see Table 5). For teachers as a whole, the three most prevalent principal activities during the year after leaving were employment (40%), homemaking/child care (25%), and retirement (23%).

Results of an analysis of leavers who took non-teaching positions in public elementary and secondary schools are reported in Table 6. The data suggest that more SETs than GETs go into school administration (37.2% versus 22.5%), while more GETs than SETs take supervisory and specialist positions (35.6% versus 17.6%). However, the small sample sizes resulted in large standard errors of these percentages, and special and general education did not differ significantly in the percentages of teachers taking various non-teaching positions in public elementary and secondary schools, $^2(3, N = 300) = 1.75, p > .10$.

Although, based on the data in Table 5, the percentages of SET and GET leavers who took employment in positions outside of elementary or secondary education was similar (15.3% versus 16.9%), it is possible that teachers in one of these fields are more likely to enter occupations relevant to education. The results of an analysis exploring this possibility are shown

in Table 7. While it appears that SETs were more inclined than GETs to take such employment (33.8% versus 18.8%), the difference was not statistically significant at the .05 level, though it was significant at the .10 level, $^2(1, N = 362) = 2.72, p<.10$.

The final analysis of SET and GET leavers addressed their stated plans to return to teaching. For this analysis, retired teachers and those who had advanced to administrative positions in schools were excluded because very few, if any, would be expected to return. As shown in Table 8, 26.7% of total leavers reported they planned to return to teaching within one year, while another 45.3% stated they might return at some future time. These data are important because they provide information about the potential size of a major component of the reserve pool of teachers (i.e., experienced teachers who might return to teaching). In all, almost three-fourths of these leavers might return to teaching sometime. However, special and general education did not differ significantly in the plans of leavers to return to teaching, $^2(3, N = 1,133) = 1.18, p>.10$. As also shown in Table 8, SETs and GETs differed little in their respective percentages of leavers who never intend to return to teaching.

Comparisons of LDTs and Other SETs

The status of 1987-88 teachers in 1988-89 is presented separately for LDTs and for other SETs in Table 9. As also seen in Table 2, the data in Table 9 reveal that school retention from 1987-88 accounts for the predominant component of the teaching force in 1988-89, though somewhat less so for other SETs (77.3%) than for LDTs (82.7%). Learning disabled and other special education specializations differed significantly in the percentages of teachers in the various turnover categories, $^2(3, N = 639) = 9.58, p<.05$. In addition, the attrition percentage reported in Table 9 for LDTs (5.0%) was less than half that of other SETs (10.6%), a difference that was statistically significant, $t(186) = 2.22, p < .05$ two-sided.

As shown in Table 9, LDTs tend to be retained in their school at a higher rate than other SETs. In this respect, LDTs are more like GETs. A comparison of the column percentages for LDTs in Table 9 with the column percentages for GETs in Table 2 suggests that LDTs are less likely to be retained than GETs. Teachers in the learning disabled specialization differed significantly from those in general education in the percentages of teachers classified in the various turnover categories [$^2(3, N = 4,443) = 17.81, p<.01$], though the specific attrition percentages of LDTs (5.0%) and GETs (5.7%) were equivalent. All these comparisons indicate

that, with respect to school retention and turnover, LDTs turn over at a higher rate than GETs but at a lower rate than other SETs.

Table 10 presents results from a more detailed analysis of the mobility of LDTs and other SETs within public education. The overall observed differences in school retention and transfer percentages between the two groups were modest and not statistically significant, $^2(3, N = 451) = 5.69, p > .10$.

Finally, LDTs and other SETs were compared in terms of their plans to return to teaching. Again, for this purpose, retired teachers and those who had advanced to school administrative positions were excluded because very few, if any, would be expected to return. Though sizable differences were observed, the small sample sizes resulted in large standard errors of these percentages. Consequently, the learning disabled and other special education specializations did not differ significantly in the plans of leavers to return to teaching, $^2(3, N = 148) = 2.23, p > .10$.

Discussion

The results demonstrate that, in accordance with a model of teacher retention and turnover at the school level, it is possible to distinguish among and to quantify the several components of teacher turnover by using data from national surveys (SASS and TFS). These analyses also illustrate the considerable complexity of the teacher turnover phenomenon, and the need to be precise in drawing conclusions about the magnitude of what is often simply termed "teacher attrition." Whether attrition percentages are relatively low or high depends, in large part, on the components of teacher turnover that are included in computing these percentages. We recommend that the components of teacher turnover be analyzed and reported separately, and that teacher attrition percentages be defined precisely as exit attrition. The meaningful comparison of research findings on teacher turnover and our collective understanding of this phenomenon could be enhanced greatly by the adoption of standard concepts, such as those suggested here.

Teacher turnover is the most generic term for changes in teacher status from one year to the next, and can be viewed from the perspectives of a public school, a school district, a state, and the nation as a whole. For example, teacher turnover from the school perspective has implications for staffing classrooms; from the district perspective has implications for recruiting,

hiring, and assigning teachers to schools; from the state perspective has implications for insuring that an adequate supply of qualified teachers is available for hiring by districts; and from the federal perspective has implications for monitoring the size, composition, and distribution of the national teaching force and for forming public policy contributing to the production and maintenance of an adequate supply of qualified teachers. The results presented here addressed teacher turnover at the school level, but aggregated for the nation as a whole, and addressed teacher turnover at the district by subdividing teacher transfers into components of within-district reassignment and cross-district migration, also aggregated for the nation as a whole. Similarly, teacher turnover at the state level was addressed by discriminating between within-state migration among districts and out-of-state migration, likewise aggregated for the nation as a whole. Finally, teacher turnover at the national level was represented simply by exit attrition.

Provided adequate data bases are available, similar analyses of teacher turnover could be made for particular schools, districts, and states. Since TFS was not designed to provide state level estimates, it would not be possible to use SASS and TFS data for this purpose. The most feasible alternative method for studying teacher supply, retention, and turnover at the level of a particular state is to develop a teacher data base from state administrative records. In addition to making such analyses possible, state level teacher data bases have several other advantages such as providing for longitudinal analyses of the state teaching force (Boe & Gilford, 1992).

Viewed from the school level, teacher turnover is considerably higher in special education than in general education, with school transfer (reassignment and migration) accounting for more turnover than exit attrition for both groups of teachers. From the district perspective, however, roughly half the number of total teachers transferring to a different school do so within the district (i.e., reassignment), therefore not requiring the hiring of teachers to replace them. Nonetheless, exit attrition is the largest component of turnover at the district and state levels, and does require that leavers be replaced. As other research has consistently suggested, the attrition percentages reported here confirm that SETs leave public school teaching at a significantly higher annual rate than GETs (7.9% versus 5.7%). There is no ambiguity about the meaning of teacher attrition from these data because all cross school, district, and state transfers are accounted for, as well as transfers to private school teaching.

While the data reported here have quantified all the components of teacher turnover at the public school level from 1987-88 to 1988-89 for both the special and general education fields,

there is one other important component of teacher transfer that has not been analyzed; namely the cross-transfer of practicing SETs in 1987-88 to general education in 1988-89, and vice versa. While it is widely recognized that many such transfers occur annually, there are no national data on this phenomenon and the best state data available indicated that 5% of SETs transferred to general education following the 1986-87 school year in the State of Washington (Schrag & Theobald, 1989). In that study, data were not reported on transfers of GETs to special education. Though we attempted to analyze cross-field transfers with the SASS and TFS data, it was our judgement that the sample size was too small to yield a credible estimate of the magnitude of this phenomenon. Determining the extent and character of cross-field transfers of teachers is a prime topic for further research.

While many teachers leave teaching in any one year, a considerable portion of these are not permanently lost to the profession. With respect to the plans of leavers to return to teaching, 20% reported an intent to return within a year and another 12% reported an intent to return eventually. While information on "plans to return," is not expected to agree exactly with the rate with which leavers actually return, nonetheless the information on plans quite likely represents reasonable estimates of the rate and magnitude with which these leavers did actually return for the 1989-90 school year and later. For instance, the actual return percentages within five years of leaving for Michigan and North Carolina SETs were 34% and 26%, respectively (Singer, 1993). As reported by various researchers (e.g., Boe et al., 1993; Kirby, Grissmer, & Hudson, 1991; Singer, 1993), the return of experienced teachers constitutes a major source of teacher supply.

Even though many teachers leave teaching, a considerable portion remain in non-teaching positions in education. As seen, about a quarter of leavers were employed in education during the year following leaving, and over half of these advanced to school administration and specialist/supervisory positions. Another 15% of public school leavers transferred to private school teaching. Even 20% of leavers taking employment out of education were working in educationally-related positions. Though the higher percentage of SET than GET leavers who took employment in educationally-related positions was not statistically significant, it is reasonable to hypothesize that such a difference is genuine, and further research might be conducted explore this possible relationship further.

Several other differences between SET and GET percentages, although not statistically significant in the data reported here, are plausible and worthy of further research. For example, SET leavers who take employment in schools are more likely than GETs to assume administrative positions, while GETs are more likely to assume specialist or supervisory positions. Also, SET leavers are less likely to return to teaching within one year of leaving than are GETs.

Though teacher turnover obviously is a problem for education administrators and policy makers in staffing the nation's classrooms, much turnover is acceptable or even desirable (e.g., moving to a new school or to a leadership position) and much is inevitable (e.g., retirement). From a state and national perspectives, the most troublesome component of turnover is exit attrition because it represents a reduction in the teaching force. Since exit attrition is significantly higher for SETs than GETs, this problem is accentuated for administrators and policy makers in special education, who, understandably, might consider investing more resources in efforts to improve retention. In light of the results of this research, we can make estimates of how fruitful such intervention might be in stabilizing the teaching force in special education.

Of the some 19,500 SETs who left public school teaching following the 1987-88 school year, presumably little would be gained by trying to retain those who (a) were unqualified (about 3,000 teachers[6]) unless upgrading their qualifications, (b) advanced to administrative and specialized positions in education (about 3,500), and (c) retired, became disabled, or were lost due to job actions (about 4,000). These three components account for 10,500 of the 19,500 SET leavers, with the difference of 9,000 SET leavers nationally constituting the potential targets for retention initiatives. However, of these 9,000 SET leavers, there is good reason to believe that some 2,500 will stop out for only one year, not too serious a loss since one can expect an equivalent annual outflow of SETs leaving for one year and inflow of returning SETs from the prior year. This is a form of turnover that might well be either constructive (e.g., upgrading skills, recovering from burnout, etc.) or unavoidable (e.g., spousal move, pregnancy, care for small children, etc.). If leavers for one year are removed from the net of 9,000 leavers that

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[6]Data from both OSEP (1992) and Boe, Cook, Kaufman, and Danielson (unpublished tables from the 1987-88 SASS) indicate that about 10% of practicing SETs are not fully certified in their main teaching assignment. However, Boe, Bobbitt, Cook, and Whitener (1993) data indicate that the attrition rate for SETs who are not fully-certified in their main teaching assignment is much higher than for fully-certified SETS (16% versus 7%, unpublished tables from 1989 TFS). Therefore, of the 19,500 SETs who left teaching at the end of the 1987-88 school year, a disproportionate number (approximately 3,000) were less than fully-certified SETs.

might be targeted for retention initiatives, a net of 6,500 potential SET stayers remain who are distributed across the 50 states.

Another way to estimate the potential for improving the retention of teachers in special education is to compute the number of additional SETs that could be retained annually if it were possible to reduce the exit attrition percentage of SETs to that of GETs. Based on the data presented here, a reduction of SET annual attrition from 7.9% to 5.7% would reduce SET attrition by some 5,500 teachers, also distributed across the 50 states.

Since both methods for estimating the numbers of additional SETs that potentially might be retained by effective intervention are rough approximations, the average of the two methods (i.e., 6,000 potential additional SET retainees per year) might be used to examine the prospective benefits of fully-effective teacher retention initiatives. At 100% effectiveness, the prospects of satisfying the need for 30,000 additional fully-certified SETs (OSEP, 1992) could be achieved in five years--not an unreasonable length of time considering the years required to educate a beginning teacher. However, if additional retention initiatives were only 50% effective (a more reasonable assumption than 100% effectiveness), then the incremental annual yield of retainees would be only 3,000. In that event, policy makers would almost certainly wish to increase the yield from various sources of supply, such as teacher education programs and recruitment from the reserve pool.

These analyses of the potential for improving retention of SETs suggest to us that there is much to be gained by strategies that address both retention and supply. Such strategies make teaching in special education more appealing generally, thereby enhancing both retention of active teachers and the attractiveness of special education to potentially entering teachers. Strategies that might be taken are (a) improving further the qualifications of SETs through professional development so that teaching is less stressful,[7] (b) designing policies by which it is relatively easy for teachers to move between special and general education teaching (thereby giving SETs a temporary break from the added stress of teaching children with disabilities), (c) increasing resources and support for teaching handicapped children, and, of course, (d) providing a salary differential for teaching in special education. Before one or more of these

[7]Since the SASS and TFS data from 1987-89 reported here were collected, efforts to enhance the professional development of SETs through the Comprehensive System for Personnel Development in Special Education have been considerably intensified.

strategies are taken, however, each should be subjected to both a cost-benefit analysis and a "feasibility" analysis in relation to supply-side strategies designed to enhance the yield of entering teachers from teacher education programs, from the reserve pool, and from active GETs who are also qualified to teach in special education.

As shown here, the subsetting of total SETs into those who teach students with learning disabilities and other SETs demonstrated patterns of retention and turnover that were significantly different, with LDTs being more stable in their positions. Based on comparisons of LDTs with other SETs and with GETs, the results indicated that, with respect to school retention and turnover, LDTs tend to turn over at a lower rate than other SETs but at a higher rate than GETs. This finding is reasonable because teaching students with learning disabilities requires much of the same knowledge and many of the same skills as teaching students who do not have disabilities. Hence, LDTs have more in common with GETs than do other SETs. Other differences between LDTs and GETs examined were not statistically significant. However, the data suggest LDT leavers are more inclined to return to teaching than are other SETs. Further research should be conducted to test this possibility.

The data on teacher attrition presented in this paper are relevant to assessing the annual demand for replacement teachers. In addition, annual growth in the number of teaching positions creates demand for additional teachers. However, neither source of annual demand necessarily creates teacher shortages as measured by unfilled teaching positions. In fact, national SASS data from 1987-88 and 1990-91 indicate that only about one-half percent of funded teaching positions were unfilled (Choy, Henke, Alt, Medrich, & Bobbitt, 1993). Another definition of teacher shortage is the number of teaching positions filled by less than fully-qualified teachers. In special education, shortage of this type has been quantified as the number of teachers "needed" in annual reports to Congress by the Office of Special Education Programs (OSEP) (e.g., 1992). For 19884-85, OSEP (1987) reported a national shortage of 23,000 fully-qualified SETs (or 8.3% total SET demand). Six years later in 1989-90, the shortage of fully-qualified SETs had increased 26% to approximately 29,100 (or 9.6% of total SET demand) (OSEP, 1992). From all these data, it is clear that SET attrition does not contribute to teacher shortage as measured by unfilled positions; instead SET attrition contributes to the shortage of fully-qualified teachers by working against efforts being made in the field of special education

to staff all teaching positions with fully-qualified personnel. Annual attrition of qualified SETs has thus served to exacerbate the shortage problem.

The main objectives of this research have been to provide, from a national perspective, quantitative data on each component of teacher retention and turnover at the school level, and to identify similarities and differences between SETs and GETs in these respects. Though this has been accomplished, we have not addressed here the many variables pertaining to teacher characteristics, working conditions, and school/community attributes that are related to retention and turnover of SETs. Available literature on these considerations has been reviewed by Billingsley (1993) and Brownell and Smith (1992). Based on research in progress with SASS and TFS data, subsequent papers of ours will contain much new information about variables related to teacher retention and turnover for both SETs and GETs.

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Table 2

National Estimates of Public School Teacher Retention, Reassignment, Migration, and Exit Attrition as a Function of Main Teaching Field: 1987-88 to 1988-89

Teacher Status: 1988-89	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
Retention in the Same School from 1987-88	Nat. Est.	196,057	1,860,513	2,056,570
	Col %	79.9%	87.1%	86.4%
	SE %	1.9%	0.5%	0.5%
	n	241	1,824	2,065
Reassignment to a Different School in the Same District for 1988-89	Nat. Est.	13,219	86,619	99,839
	Col %	5.4%	4.0%	4.2%
	SE %	0.7%	0.3%	0.2%
	n	92	425	517
Migration to a Different School in a Different District for 1988-89	Nat. Est.	16,540	65,826	82,366
	Col %	6.7%	3.1%	3.5%
	SE %	0.9%	0.3%	0.3%
	n	118	486	604
Attrition from Public School Teaching for 1988-89	Nat. Est.	19,475	122,773	142,248
	Col %	7.9%	5.7%	6.0%
	SE %	1.3%	0.4%	0.3%
	n	188	1,424	1,612
Total Teaching Force in 1987-88	Nat. Est.	245,292	2,135,731	2,381,022
	SE Est.	18,789	51,387	58,453
	Col %	100.0%	100.0%	100.0%
	n	639	4,159	4,798

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a] Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size.

*The χ^2 for this 4 x 2 table was 21.42 ($p < .01$).

Table 3

National Estimates of Continuing Public School Teachers as a Function of School Transfer Location and Main Teaching Field: 1987-88 to 1988-89

1988-89 School Transfer Location	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
Same School	Nat. Est.	196,057	1,860,513	2,056,570
	Col %	86.8%	92.8%	91.8%
	SE%	1.4%	0.4%	0.5%
	n	241	1,824	2,065
Different School/Same District	Nat. Est.	13,219	86,619	99,839
	Col %	5.9%	4.3%	4.5%
	SE%	0.8%	0.3%	0.3%
	n	92	425	517
Different District/Same State	Nat. Est.	10,830	41,604	52,434
	Col %	4.8%	2.1%	2.5%
	SE%	0.8%	0.2%	0.2%
	n	71	347	418
Out-of-State District	Nat. Est.	5,657	14,672	20,329
	Col %	2.5%	0.7%	1.3%
	SE%	0.6%	0.1%	0.2%
	n	44	120	164
Total ContinuingTeachers: 1987-88 to 88-89	Nat. Est.	225,763	2,003,408	2,229,172
	SE Est.	18,323	50,339	57,545
	Col %	100.0%	100.0%	100.0%
	n	448	2,716	3,164

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a] Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size. Item nonresponse resulted in a sample size reduction of 22 teachers.

*The χ^2 for this 4 x 2 table was 26.83 ($p < .01$).

Table 4

National Estimates of Exiting Public School Teachers as a Function of Reason for Leaving and Main Teaching Field: 1987-88 to 1988-89

Main Reason for Leaving Teaching After 1987-88	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
Pursue other Career	Nat. Est.	[b]	12,433	17,688
	Col %	30.4%	10.8%	13.4%
	SE %	11.0%	2.0%	2.4%
	n	19	112	131
Pregnancy/Child Rearing	Nat. Est.	3,016	22,045	25,062
	Col %	17.4%	19.2%	19.0%
	SE %	4.7%	3.3%	2.9%
	n	40	172	212
Family or Personal Move	Nat. Est.	[b]	10,483	11,521
	Col %	6.0%	9.1%	8.7%
	SE %	2.1%	1.6%	1.5%
	n	19	130	149
Retirement	Nat. Est.	[b]	28,619	29,669
	Col %	6.1%	24.9%	22.5%
	SE %	2.2%	3.0%	2.4%
	n	19	346	365
Other[c]	Nat. Est.	6,949	41,273	48,223
	Col %	40.1%	35.9%	36.5%
	SE %	8.3%	2.6%	2.4%
	n	76	610	686
Total Exit Attrition from 1987-88	Nat. Est.	17,309	114,853	132,162
	SE Est.	2,872	6,980	6,990
	Col %	100.0%	100.0%	100.0%
	n	173	1,370	1,543

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of colums or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size. Item nonresponse resulted in a sample size reduction of 69 teachers.

[b]Sample too small (< 30) for computing a reliable estimate.

[c]Other includes health, better salary, to return to school, dissatisfied with teaching, lay-offs, to take sabatical, and other.

*The χ^2 for this 5 x 2 table was 15.90 ($p < .01$).

Table 5

National Estimates of Exiting Public School Teachers as a Function of Post-Teaching Activity and Main Teaching Field: 1987-88 to 1988-89

Post-Teaching Activity	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
Employment: In Education	Nat. Est.	6,246	26,005	32,251
	Col %	32.1%	21.2%	22.7%
	SE %	8.1%	3.5%	3.3%
	n	47	255	302
Employment: Out of Education	Nat. Est.	2,982	20,741	23,724
	Col %	15.3%	16.9%	16.7%
	SE %	4.1%	1.7%	1.6%
	n	39	323	362
Homemaking/Child Care	Nat. Est.	5,451	30,698	36,149
	Col %	28.0%	25.0%	25.4%
	SE %	7.0%	3.7%	3.4%
	n	55	267	322
Retirement	Nat. Est.	[b]	29,546	32,894
	Col %	17.2%	24.1%	23.1%
	SE %	6.6%	2.4%	2.1%
	n	25	356	381
Other[c]	Nat. Est.	[b]	15,783	17,230
	Col %	7.4%	12.9%	12.1%
	SE %	3.0%	1.7%	1.5%
	n	22	223	245
Total Exit Attrition from 1987-88	Nat. Est.	19,475	122,773	142,248
	SE Est.	3,175	7,556	7,605
	Col %	100.0%	100.0%	100.0%
	n	188	1,424	1,612

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of colums or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size.

[b]Sample too small (<30) for computing a reliable estimate.

[c]Other includes to return to school, disabled and other.

*The χ^2 for this 5 x 2 table was 3.47 ($p > .10$).

Table 6

National Estimates of Exiting Public School Teachers who Secured Employment in Education as a Function of Type of Position and Main Teaching Field: 1987-88 to 1988-89

Type of Employment in Education in 1988-89	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
Administration	Nat. Est.	_[b]	5,810	8,133
	Col %	37.2%	22.5%	25.3%
	SE %	21.2%	4.7%	6.1%
	n	12	87	99
Specialist and Supervisory	Nat. Est.	_[b]	9,191	10,290
	Col %	17.6%	35.6%	32.1%
	SE %	12.8%	9.0%	7.6%
	n	14	69	83
Private School Teaching	Nat. Est.	_[b]	3,464	4,905
	Col %	23.1%	13.4%	15.3%
	SE %	13.2%	4.1%	3.9%
	n	9	39	48
Other[c]	Nat. Est.	_[b]	7,381	8,764
	Col %	22.1%	28.6%	27.3%
	SE %	15.0%	11.0%	9.6%
	n	12	58	70
Total	Nat. Est.	6,246	25,846	32,092
	SE Est.	2,161	5,090	5,438
	Col %	100.0%	100.0%	100.0%
	n	47	253	300

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size. Item nonresponse resulted in a reduction of sample size of two teachers.

[b]Sample too small (<30) for computing a reliable estimate.

[c]Other includes employment such as support staff, coach and other.

*The χ^2 for this 4 x 2 table was 1.75 ($p > .10$).

Table 7

National Estimates of Exiting Public School Teachers Who Secured Employment in Positions Outside Education as a Function of the Educational Relevance of the Position and Main Teaching Field: 1987-88 to 1988-89

Educational Relevance of Position	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
Educationally-Relevant Position	Nat. Est.	_[b]	3,897	4,905
	Col %	33.8%	18.8%	20.7%
	SE %	11.6%	2.9%	3.0%
	n	14	68	82
Not Educationally-Relevant Position	Nat. Est.	_[b]	16,845	18,819
	Col %	66.2%	81.2%	79.3%
	SE %	11.6%	2.9%	3.0%
	n	25	255	280
Total Employed Outside Education	Nat. Est.	2,982	20,741	23,724
	SE Est.	675	1,915	2,084
	Col %	100.0%	100.0%	100.0%
	n	39	323	362

Note. Data from the 1987-88 Schools and Staffing Survey and the1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of colums or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size.

[b]Sample too small (<30) for computing a reliable estimate.

*The χ^2 for this 2 x 2 table was 2.72 ($p < .10$).

Table 8

National Estimates of Exiting Public School Teachers as a Function of Their Plans to Return to Teaching and Main Teaching Field: 1987-88 to 1988-89

Plans to Return to Teaching	Statistic[a]	Main Teaching Field: 1987-88* Special Education	General Education	Total
By Next Year	Nat. Est.	2,697	24,247	26,944
	Col %	18.5%	28.1%	26.7%
	SE%	5.7%	3.7%	3.4%
	n	39	254	293
Eventually	Nat. Est.	2,493	12,837	15,330
	Col %	17.1%	14.9%	15.2%
	SE%	4.8%	2.2%	2.1%
	n	34	156	190
Undecided	Nat. Est.	5,103	25,271	30,374
	Col %	35.1%	29.3%	30.1%
	SE%	10.1%	3.9%	3.6%
	n	48	300	348
Never[c]	Nat. Est.	_[b]	24,036	28,298
	Col %	29.3%	27.8%	28.0%
	SE%	12.5%	3.0%	3.1%
	n	27	275	302
Total Exit Attrition from 1987-88	Nat. Est.	14,555	86,390	100,945
	SE Est.	2997	7104	7074
	Col %	100.0%	100.0%	100.0%
	n	148	985	1133

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size. Item nonresponse resulted in the loss of 83 teachers.

[b]Sample size too small (<30) to compute a reliable estimate.

[c]Excludes teachers who retired and who advanced to administrative positions in education.

*The χ^2 for this 4 x 2 table is 1.18 ($p > .10$).

Table 9

National Estimates of Public Special Education Teacher Retention, Reassignment, Migration, and Exit Attrition as a Function of Specialization: 1987-88 to 1988-89

Teacher Status: 1988-89	Statistic[a]	Specialization: 1987-88* Learning Disabled	Other Spec. Ed.	Total Spec. Ed.
Retention in the Same School from 1987-88	Nat. Est	97,637	98,420	196,057
	Col %	82.7%	77.3%	79.9%
	SE %	1.9%	3.1%	1.9%
	n	108	133	241
Reassignment to a Different School in a the Same District for 1988-89	Nat. Est.	4,650	8,570	13,219
	Col %	3.9%	6.7%	5.4%
	SE %	0.8%	1.3%	0.7%
	n	35	57	92
Migration to a Different School in a Different District for 1988-89	Nat. Est.	9,817	6,723	16,540
	Col %	8.3%	5.3%	6.7%
	SE %	1.3%	1.1%	0.9%
	n	63	55	118
Attrition from Public School Teaching for 1988-89	Nat. Est.	5,935	13,541	19,475
	Col %	5.0%	10.6%	7.9%
	SE %	0.8%	2.4%	1.3%
	n	78	110	188
Total Teaching Force in 1987-88	Nat. Est.	118,038	127,254	245,292
	SE Est.	12,050	11,668	18,789
	Col %	100.0%	100.0%	100.0%
	n	284	355	639

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size.

*The χ^2 for this 4 x 2 table was 9.58 ($p < .05$).

Table 10

National Estimates of Continuing Public Special Education Teachers as a Function of School Transfer Location and Specialization: 1987-88 to1988-89

1988-89 School Transfer Location	Statistic[a]	Specialization: 1987-88* Learning Disabled	Other Spec. Ed.	Total Spec. Ed.
Same School	Nat. Est.	97,637	98,420	196,057
	Col %	87.1%	86.6%	86.8%
	SE %	1.7%	2.1%	1.4%
	n	108	133	241
Different School/ Same District	Nat. Est.	4,650	8,570	13,219
	Col %	4.1%	7.5%	5.9%
	SE %	0.9%	1.5%	0.8%
	n	35	57	92
Different District/ Same State	Nat. Est.	5,659	5,224	10,883
	Col %	5.1%	4.6%	4.8%
	SE %	1.1%	1.1%	0.8%
	n	37	37	74
Out-of-State	Nat. Est.	_b	_b	5,657
	Col %	3.7%	1.3%	2.5%
	SE %	1.0%	0.5%	0.6%
	n	26	18	44
Total	Nat. Est.	112,103	113,713	225,816
	SE Est.	11,885	11,221	18,320
	Col %	100.0%	100.0%	100.0%
	n	206	245	451

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error; n = sample size.

[b]Sample too small (<30) for computing a reliable estimate.

*The χ^2 for this 4 x 2 table was 5.69 ($p > .10$).

Table 11

National Estimates of Exiting Public Special Education Teachers as a Function of Their Plans to Return to Teaching and Specialization: 1987-88 to 1988-89.

Plans to Return to Teaching	Statistic[a]	Specialization: 1987-88* Learning Disabled	Other Spec. Ed.	Total Spec. Ed.
By Next Year	Nat. Est.	_b	_b	2,697
	Col %	28.9%	14.0%	18.5%
	SE %	7.6%	7.1%	5.7%
	n	15	24	39
Eventually	Nat. Est.	_b	_b	2,493
	Col %	21.8%	15.1%	17.1%
	SE %	6.7%	6.4%	4.8%
	n	14	20	34
Undecided	Nat. Est.	_b	_b	5,103
	Col %	34.3%	35.4%	35.1%
	SE %	7.0%	14.5%	10.1%
	n	24	24	48
Never[c]	Nat. Est.	_b	_b	_b
	Col %	15.0%	35.5%	29.3%
	SE %	7.0%	17.2%	12.5%
	n	8	19	27
Total Exit Attrition from 1987-88	Nat. Est.	4437	10,118	14,555
	SE Est.	597	2929	2997
	Col %	100.0%	100.0%	100.0%
	n	61	87	148

Note. Data from the 1987-88 Schools and Staffing Survey and the 1988-89 Teacher Followup Survey, National Center for Education Statistics, USDE.

[a]Nationally weighted estimates (Nat. Est.) of the total numbers of full-time and part-time teachers combined at both the elementary and secondary levels in the public sector. Sums of columns or sums of rows may not equal totals because of rounding. Col = column; SE = standard error. n = sample size. Item nonresponse resulted in the loss of 13 teachers.

[b]Sample size too small (< 30) to compute a reliable estimate.

[c]Excludes teachers who retired and who advanced to administrative positions in education.

*The χ^2 for this 4 x 2 table was 2.23 ($p > .10$).

Appendix A

SASS TECHNICAL NOTES

For The Public School Teachers Questionnaire

Introduction

The data for this paper were collected on the Public School Teachers Questionnaire, one of seven questionnaires comprising the 1987-88 Schools and Staffing Survey (SASS), a survey developed by the U.S. Department of Education's National Center for Education Statistics (NCES), and conducted by the U.S. Bureau of the Census.

SASS was a mail survey which collected public and private sector data on the Nation's elementary and secondary teaching force, aspects of teacher supply and demand, teacher workplace conditions, characteristics of school administrators, and school policies and practices. The seven questionnaires of the SASS are as follows:

1. The Teacher Demand and Shortage Questionnaire for Public School Districts (LEAs).
2. The Teacher Demand and Shortage Questionnaire for Private Schools.
3. The School Administrator Questionnaire.
4. The Public School Questionnaire.
5. The Private School Questionnaire.
6. The Public School Teachers Questionnaire.
7. The Private School Teachers Questionnaire.

Sample Selection

All 56,242 public and 11,529 private school teachers in the teacher samples were selected from the 9,317 public and 3,513 private school samples.[8]

A list which included all full-time and part-time teachers, itinerant teachers, and long-term substitutes was obtained from each sample school. Within each school, teachers were stratified by experience; one stratum included new teachers, and a second stratum included all other teachers. New teachers were those who, counting the 1987-88 school year, were in the first, second, or third year of their teaching career in either a public or private school system. Within

[8] The other SASS samples were as follows: 5594 public school districts, and the administrators (principals) of schools in the public and private school samples.

each teacher stratum, teachers were sorted by subject (General Elementary Education, Special Education, Mathematics, Science, English, Social Science, Vocational Education, other).

The public and private school teacher samples was designed to include a basic sample and a Bilingual/ESL(English as a Second Language) supplement. The bilingual/ESL supplement included teachers who use a native language other than English to instruct students with limited English proficiency (bilingual) and teachers providing students with limited English proficiency with intensive instruction in English (ESL). The supplement was funded by the Department of Education's Office of Bilingual Education and Minority Language Affairs (OBEMLA) in order to obtain more reliable estimates of bilingual/ESL education teachers.

The basic sample of teachers required for each of the public and private school strata was allocated to the sample schools in each stratum so that the teacher weights were equal. The specified average teacher sample size for each sample school (4, 8, and 6 teachers for each public elementary, secondary, and combined school, respectively; and 4, 5, and 3 teachers for each private elementary, secondary, and combined school, respectively) was then allocated to the two teacher strata to obtain an oversampling of new private school teachers at a fixed rate, and proportional allocation of public school teachers. Finally, a systematic sampling scheme was then applied to select the basic sample within each teacher stratum. An independent systematic sampling scheme was applied to bilingual teachers in each sample school to select the bilingual supplement. To control the number of teachers in each of the six bilingual strata (California, Texas, Florida, Illinois, New York, and all other States), the supplement was subsampled systematically with equal probabilities by stratum. Teachers selected in both the supplement and the basic sample were unduplicated so that each teacher appears only once.

The sample sizes were as follows:

-Public nonbilingual	53,394	-Private nonbilingual	11,248
-Public bilingual	2,848	-Private bilingual	281

Data Collection

The Teachers Questionnaires were mailed to the sampled schools in February 1988. Approximately 10 days after this mailout, a letter was sent to the survey coordinator in each school identifying the school's sample teachers and requesting the coordinator to remind the sample teachers to complete and return their questionnaires. Approximately six weeks after the mailout, a second set of questionnaires, for sample teachers who had not returned the first

questionnaire, was sent in a package to the school coordinators for distribution to nonresponding teachers. During the time of this second mailout, each coordinator was telephoned and asked to remind those teachers who had not returned the first questionnaire to complete the second one and mail it back. A telephone follow-up was conducted during April, May, and June. Due to the large number of nonrespondents and the necessity for completing the follow-up prior to the closing of schools for the summer, only a subsample of nonresponding teachers was included in this effort. This subsample of nonresponding teachers had their weights adjusted to represent the nonresponding teachers who were not selected for the followup.

Questionnaire Response Rates

Weighted response rates were 86.4 percent for the Public School Teachers Questionnaire and 79.1 percent for the Private School Teachers Questionnaire.

Item Description

The Public and Private School Teachers Questionnaires are almost identical, and are available from NCES and/or the author.

Effects of Item Nonresponse

There was no explicit imputation for item nonresponse. Not imputing for item nonresponse leads to a bias in the estimates. In tables which present averages, the nature of this bias is unknown.

Standard Errors

The estimates in these tables are based on samples and are subject to sampling variability. Standard errors were estimated using a balanced repeated replication procedure that incorporates the design features of this complex sample survey. The standard errors provide indications of the accuracy of each estimate. If all possible samples of the same size were surveyed under the same conditions, an interval of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the universe value in approximately 95 percent of the cases. Note, however, that the standard errors in the tables do not take into account the effects of biases due to item nonresponse, measurement error, data processing error, or other systematic error.

Definition of Teacher

For purposes of this survey, a teacher was any full-time or part-time regular teacher whose primary assignment was teaching in any teaching field in any grade K-12. Itinerant teachers

were included, as well as long-term substitutes who were filling the role of a regular teacher on an indefinite basis.

For More Information

For information about purchasing SASS data tapes on public and private school teachers, call Information Services, Office of Education Research and Improvement, U.S. Department of Education (1-800: 424-1616).

For more information about these technical notes, contact Sharon A. Bobbitt, Elementary and Secondary Education Statistics Division, National Center for Education Statistics, U.S. Department of Education, 555 New Jersey Avenue N.W., Washington, D.C., 20208-5651, telephone (202) 219-1416.

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